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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/799,446	03/12/2004	Paul C. Arnold	0100.2050-001	6254

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EXAMINER	
HE, AMY	
ART UNIT	**PAPER NUMBER**
2858	

DATE MAILED: 04/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/799,446	ARNOLD ET AL.	
	Examiner	Art Unit	
	Amy He	2858	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-46* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-46* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 June 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *8/30/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because the current status of the related application (Continuation-In-Part of U. S. Application No. 10/782, 368, now abandoned) should be updated. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 12-13, 26, 28, 35-36 and 46 are rejected under 35 U.S.C. 102(b) as being anticipated by Budovich et al. (U. S. Patent No. 6, 023, 169).

Referring to claims 1 and 46, Budovich discloses (in Figures 1 and 2):

an electron source/means (6, 120) for generating electrons;

a collector electrode/means (9, 109) for collecting ions formed by the impact between the electrons and gas molecules; and

an electron window/means (4, 104) which isolates the electron source from the gas molecules.

Referring to claim 26, Budovich discloses the steps of:

producing electrons at an electron source(6, 120);

transmitting the electrons through an electron window (4, 104), the electron window isolating the electron source from the gas molecules; and

collecting ions formed by impact between the electrons and the gas molecules and atoms on a collector electrode(9, 109).

Referring to claims 12-13 and 35-36, Budovich discloses stabilizing the sensitivity using a shield (chamber 1, 101 in Figures 1-2) defining a shielded volume, the shield being at least partially open to permit transfer of the gas molecules into the shielded volume so potentials external to the shield do not disturb the electric charge distribution within the shielded volume, and where the shielded volume houses the electron source (6, 120), the collector electrode (9, 109), and the electron window (4, 104).

Referring to claim 28, Budovich discloses using an acceleration electrode (27 or 118 in Figures 1 and 2), accelerating the electrons to an energy, which allows the electrons to be transmitted through the electron window (4, 104).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 18, 24, 26, 40 and 45-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frees et al. (U. S. Patent No. 6, 468, 814), in view of Budovich et al. (U. S. Patent No. 6, 023, 169).

Referring to claims 1 and 46, Frees discloses (in Figure 2) an ionization gauge, comprising:

an electron source/means (66) for generating electrons;

a collector electrode/means (78) for collecting ions formed by the impact between the electrons and gas molecules.

Frees does not specifically disclose an electron window/means for isolating the electron source from the gas molecules. Budovich discloses an electron window/means (partition 4, 104 in Figures 1-2), which isolates the electron source from the gas molecules. It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Frees to use an electron window/means, as taught by Budovich, for isolating the electron source from the gas molecules, so as to eliminate contamination of the active surface of the electron source by molecules of the gas to be analyzed (Budovich reference, column 1, lines 35-55).

Referring to claim 26, it is the method claim corresponding to the rejected apparatus claims (claim 1, 46). It is rejected for the same reasons as stated above for the rejection of the apparatus claims.

Referring to claims 24 and 45, Frees discloses a mass filter (74 in Figure 2) for separating the ions based on mass-to-charge ratio (column 6, lines 26-40).

Referring to claims 18 and 40, Frees discloses a residual gas analyzer (column 6, lines 26-27) for determining a gas type.

4. Claims 1, 12-17, 19-23, 25-29, 35-39, 41-44 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bills et al. (U. S. Patent No. 5, 422, 573), in view of Budovich et al. (U. S. Patent No. 6, 023, 169).

Referring to claims 1 and 46, Bills discloses an ionization gauge (in claim 1), comprising:

an electron source/means (source of electron, column 20, line 42) for generating electrons;

a collector electrode/means (collector, column 20, line 44) for collecting ions formed by the impact between the electrons and gas molecules.

Bills does not specifically disclose an electron window/means for isolating the electron source from the gas molecules. Budovich discloses an electron window/means (partition 4, 104 in Figures 1-2), which isolates the electron source from the gas molecules. It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Bills to use an electron window/means for isolating the electron source from the gas molecules, as taught by Budovich, so as to eliminate contamination of the active surface of the electron source by molecules of the gas to be analyzed. (Budovich reference, column 1, lines 35-55)

Referring to claim 26, it is the method claim corresponding to the rejected apparatus claims (claim 1, 46). It is rejected for the same reasons as stated above for the rejection of the apparatus claims.

Referring to claims 28-29, Budovich discloses using an acceleration electrode (27 or 118 in Figures 1 and 2) for accelerating the electrons to an energy, which allows

the electrons to be transmitted through the electron window (4, 104). Budovich does not disclose using a plurality of acceleration electrodes. A person of ordinary skill in the art would find it obvious to further modify Bills to use a plurality of acceleration electrodes, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *See St Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Referring to claims 12-13 and 35-36, Bills discloses the ionization gauge/method of claims 1 and 26, further comprising stabilizing the sensitivity using a shield (shield means, column 20, lines 47-60) defining a shielded volume, the shield being at least partially open to permit transfer of the gas molecules into the shielded volume so potentials external to the shield do not disturb the electric charge distribution within the shielded volume, and where the shielded volume houses the electron source, the collector electrode, and the electron window.

Referring to claims 14-15 and 37-38, Bills discloses the ionization gauge of claims 12 and 35, where the shield is maintained at a reference potential (see claim 10), and the reference potential is ground potential (see claim 11).

Referring to claims 16-17 and 39, Bills discloses a pressure gauge/ Bayard-Alpert type gauge (see claim 12) for measuring pressure.

Referring to claims 19, 20, 22, 41 and 43, Bills discloses the ionization gauge of claim 1, further comprising an anode defining an anode volume (column 20, line 43) which retains the electrons in a region of the anode, where the collector electrode is within the anode volume (claim 2) or outside the anode volume (claim 3).

Referring to claims 21, 23, 25, 27, 42 and 44, Bills discloses using a collector electrode within/outside the anode volume (claims 2-3) and using an electron source. Bills does not specifically disclose using a plurality of collector electrodes within/outside the anode volume and using a plurality of electron sources. A person of ordinary skill in the art would find it obvious to modify Bills to use a plurality of collector electrodes within/outside the anode volume and a plurality of electron sources, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *See St Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

5. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Budovich et al. (U. S. Patent No. 6, 023, 169).

Referring to claim 30, Budovich discloses the acceleration electrode is maintained at an electric potential so that the potential difference between the electron source and the acceleration electrode is at a range of 18-25kV (column 3, lines 47-51). Budovich does not specifically disclose that the range is of 100 V to 10 KV. A person of ordinary skill in the art would find it obvious to modify Budovich to maintain the electric potential difference at a range of 100 V to 10 KV, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F. 2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

6. Claims 2-6, 8-11 and 31-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Budovich et al. (U. S. Patent No. 6, 023, 169), in view of Bills (U. S. Patent No. 5, 128,617).

Referring to claims 2 and 31, Budovich discloses an acceleration electrode (27 or 121 and 118 in Figures 1-2) between the electron source and the electron window to accelerate the electron to an energy which allows the electrons to be transmitted through the electron window. Budovich does not specifically disclose a deceleration electrode between the electron window and the collector electrode to decelerate the electrons. Bills discloses a deceleration electrode (18", column 10, lines 54-61). A person of ordinary skill in the art would find it obvious at the time of the invention to modify Budovich to use acceleration electrode, as taught by Bills, for the purpose of reducing soft X-rays and X-rays limit, which would lead to extraneous photo-electron current that adds to the ion current in the collector (column 1, lines 33-39; column 10, lines 54-61).

Referring to claim 3, Budovich discloses a plurality of acceleration electrodes (121 and 118 in Figure 2).

Referring to claims 4 and 32, Budovich in view of Bills discloses a deceleration electrode. Budovich in view of Bills do not disclose a plurality of deceleration electrodes. A person of ordinary skill in the art would find it obvious to further modify Budovich to use a plurality of deceleration electrodes, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *See St Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Referring to claims 5-6, Budovich in view of Bills discloses (Bills reference, see Figure 8) an anode (14) defining an anode volume, the anode surrounding the collector electrode (16). Budovich in view of Bills do not specifically disclose that the collector electrode includes a plurality of collector electrodes. A person of ordinary skill in the art would find it obvious to use a plurality of collector electrodes, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *See St Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Referring to claim 8, Budovich in view of Bills discloses the ionization gauge of claim 2, where the acceleration electrode is maintained at an electric potential so that the potential difference between the electron source and the acceleration electrode is at a range of 18-25kV (Budovich reference, column 3, lines 47-51). Budovich in view of Bills does not specifically disclose that the range is of 100 V to 10 KV. A person of ordinary skill in the art would find it obvious at the time of the invention to further modify Budovich to maintain the electric potential difference at a range of 100 V to 10 KV, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F. 2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Referring to claims 9 and 33, Budovich in view of Bills discloses the deceleration electrode is maintained at an electric potential (few volts positive with respect to the cathode, see Bills reference, column 10, lines 56-57) so that the potential difference between the electron window and the deceleration electrode is at a range of 0 V to 10 KV.

Referring to claims 10-11 and 34, Budovich in view of Bills disclose a collector electrode. Budovich in view of Bills do not disclose a plurality of outside collector electrode between the electron window and the deceleration electrode. A person of ordinary skill in the art would find it obvious at the time of the invention to further modify Budovich to use additional collector electrodes between the electron window and the deceleration electrode for collecting ions there, since it has been held that mere duplication of the essential working parts (collector electrode) of a device involves only routine skill in the art. *See St Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Budovich et al. (U. S. Patent No. 6, 023, 169) in view of Bills (U. S. Patent No. 5, 128,617), and further in view of Frees et al. (U. S. Patent No. 6, 468, 814).

Referring to claim 7, Budovich in view of Bills disclose the ionization gauge of claim. Budovich in view of Bills do not specifically disclose a mass filter between the deceleration electrode and the collector electrode. Frees discloses a mass filter (74 in Figure 2). A person of ordinary skill in the art would find it obvious at the time of the invention to further modify Budovich in view of Bills to use a mass filter, as taught by Frees, for separating ions based on mass-to-charge ratio, so as to analyze the gas type (column 6, lines 26-40).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amy He whose telephone number is (571) 272-2230. The examiner can normally be reached on 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lefkowitz can be reached on 571-272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AH
April 13, 2005.

ANJAN DEB
PRIMARY EXAMINER